



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,401	02/27/2004	Jeffrey Wannamaker	TVW/APP52US	5238
59906	7590	11/19/2008	EXAMINER	
Saul Ewing, LLP			DAO, THUY CHAN	
TVWORKS, LLC			ART UNIT	PAPER NUMBER
1500 MARKET STREET			2192	
38th Floor				
PHILADELPHIA, PA 19102				
		MAIL DATE	DELIVERY MODE	
		11/19/2008		PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/789,401	WANNAMAKER ET AL.
	<b>Examiner</b> Thuy Dao	<b>Art Unit</b> 2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 03 September 2008.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1,3-13,16 and 18-30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,3-13,16 and 18-30 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 27 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

#### **DETAILED ACTION**

1. This action is responsive to the amendment filed on September 3, 2008.
2. Claims 1, 3-13, 16, and 28-30 have been examined.

#### **Response to Amendments**

3. In the instant amendment, claims 1, 3-13, and 16 have been amended.
4. The objection to claims 1 and 3-13 is withdrawn in view of Applicant's amendments.

#### **Response to Arguments**

5. Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection.

#### **Claim Rejections – 35 USC §102**

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 5-13 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 6,240,548 to Holzle et al. (art made of record, hereafter "Holzle").

#### **Claim 1:**

Holzle discloses a *method for processing a p-code file, comprising:*

*analyzing p-code methods to be compiled within said p-code file (e.g., FIG. 1, col.4: 20 – col.5: 19);*

*identifying one or more p-code methods that have at least one profile parameter above a threshold level (e.g., FIG. 3, blocks 302-306, col.7: 12-67); and*

*annotating said identified p-code methods to be compiled, said annotating associating a respective priority level hint with each p-code method to be compiled (e.g., FIG. 4, col.10: 4-44; col.12: 14-61; col.6: 21 – col.7: 21),*

*said priority level hints being hierarchically-related and collectively representing a hierarchical order (e.g., FIG. 4, blocks 404 or 406, col.10: 4-44; col.4: 4 – col.5: 30),*

*said priority level hints enabling preferential processing of said p-code methods in a hierarchical manner corresponding to said a hierarchical order of said priority level hints (e.g., FIG. 6, col.11: 26 – col.12: 12; col.7: 23 - col.8: 39; col.2: 23 - col.3: 8).*

**Claim 5:**

Holzle discloses *the method mot of claim 1, wherein said priority level hints are provided as a separate file (e.g., col.10: 4-44; col.6: 21 – col.7: 21).*

**Claim 6:**

Holzle discloses *the method of claim 1, wherein: said at least one profile parameter comprises at least one of a method execution time, a frequency of method invocation, a number of instructions and a use of loop structures (e.g., col.8: 1-53; col.11: 26-65).*

**Claim 7:**

Holzle discloses *the method of claim 1, wherein: said at least one profile parameter comprises at least one of an execution time parameter, an input/output utilization parameter and a processor utilization parameter (e.g., col.4: 4 – col.5: 30; col.8: 41 – col.9: 36).*

**Claim 8:**

Holzle discloses *the method of claim 1, wherein: said analyzing comprises identifying at least one of a static profile parameter and a dynamic profile parameter* (e.g., col.6: 21 – col7: 21; col.11: 26-65).

**Claim 9:**

Holzle discloses *the method of claim 1, wherein: said annotating comprises setting a normally unused bit within a method access flag field of an identified Java class file* (e.g., col.2: 23 – col.3: 8; col.10: 4-44; col.12: 14 – col.13: 8).

**Claim 10:**

Holzle discloses *the method of claim 1, wherein: said annotating comprises selectively setting each of a plurality of normally unused bits within a method access flag field of an identified class file* (e.g., col.7: 23 – col.8: 39; col.8: 1-53),

*wherein said unused bits are selectively set to define thereby said priority level hint of a respective annotated method* (e.g., col.6: 21 – col.7: 21; col.8: 41 – col.9: 36).

**Claim 11:**

Holzle discloses *the method of claim 3, wherein: each identified byte-code portion of said application is associated with one of a plurality of priority levels, said priority level hints being indicative of respective priority levels* (e.g., col.2: 23 – col.3: 8; col.4: 4 – col.5: 30).

**Claim 12:**

Holzle discloses *the method of claim 3, further comprising: selectively pre-compiling at least a portion of said application file* (e.g., col.7: 12-67; col.8: 66 – col.9: 63).

**Claim 13:**

Holzle discloses *the method of claim 12, wherein: said precompiled portion of said application file is included within a virtual machine* (e.g., col.11: 26 – col.12: 12; col.2: 23 – col.3: 8).

#### **Claim Rejections – 35 USC §103**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holzle in view of US Patent No. 7,155,707 to Clarke (art made of record, hereafter "Clarke").

#### **Claim 4:**

Holzle does not explicitly disclose *the method of claim 1, wherein said priority level hints are provided in-line with said identified p-code methods*.

However, in an analogous art, Clarke further discloses *priority level hints are provided in-line with said identified p-code methods* (e.g., FIG. 4C, col.9: 59 – col.10: 48).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Clarke's teaching into Holzle's teaching. One would have been motivated to do so to re-locate and in-line branch instructions, utilize a limited number of target registers, and reduce the distance between the set branch instruction and the effect branch instruction as suggested by Clarke (e.g., col.3: 5 – col.4: 31).

10. Claims 3, 16, and 18-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holzle in view of US Patent No. 7,103,723 to Cierniak (art made of record, hereafter "Cierniak").

**Claim 3:**

*Holzle does not explicitly disclose the method of claim 1, wherein: said p-code file comprises an application for processing by a virtual machine (VM) just-in-time (JIT) compiler.*

*However, in an analogous art, Cierniak further discloses said p-code file comprises an application for processing by a virtual machine (VM) just-in-time (JIT) compiler (e.g., FIG. 1, col.3: 40 – col.4: 9).*

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Cierniak's teaching into Holzle's teaching. One would have been motivated to do so to increase speed when executing Java code as suggested by Cierniak (e.g., col.3: 40-58).

**Claim 16:**

The rejection of claim 1 is incorporated. Cierniak further discloses:

*storing said compiled p-code methods in a cache for subsequent execution in place of corresponding interpreted p-code methods (e.g., col.1: 11 – col.2: 6; col.3: 2-31; col.6: 31-58),*

*said compiled p-code methods being preferentially retained in said cache in a hierarchical manner corresponding to a hierarchical order of their respective priority indicative annotations (e.g., col.1: 44 – col.2 :27; col.4: 9-35).*

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Cierniak's teaching into Holzle's teaching. One would have been motivated to do so to increase speed when executing Java code as suggested by Cierniak (e.g., col.3: 40-58).

**Claim 18:**

Cierniak discloses *the method of claim 16, wherein: said p-code file comprises an application file for processing by a virtual machine (VM) just-in-time (JIT) compiler* (e.g., col.1: 11 - col.2: 6; col.4: 9-35).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Cierniak's teaching into Holzle's teaching. One would have been motivated to do so to as set forth above.

**Claim 19:**

Cierniak discloses *the method of claim 16, wherein said priority indicative annotations are provided in-line with said identified p-code methods* (e.g., col.3: 2-31; col.6: 31-58).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Cierniak's teaching into Holzle's teaching. One would have been motivated to do so to as set forth above.

**Claim 20:**

Holzle discloses *the method of claim 16, wherein said priority indicative annotations are provided as a separate file* (e.g., col.8: 1-53; col.11: 26-65).

**Claim 21:**

Cierniak discloses *the method of claim 16, further comprising: in response to cache memory utilization above a threshold level, prioritizing the contents of said cache memory* (e.g., col.1: 44 – col.2: 27; col.4: 9-35).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Cierniak's teaching into Holzle's teaching. One would have been motivated to do so to as set forth above.

**Claim 22:**

Cierniak discloses *the method of claim 21, wherein: said cache memory contents are prioritized by deleting from said cache compiled code associated with a least recently executed method* (e.g., col.3: 2-31; col.6: 31-58).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Cierniak's teaching into Holzle's teaching. One would have been motivated to do so to as set forth above.

**Claim 23:**

Cierniak discloses *the method of claim 21, wherein: said cache memory contents are prioritized by deleting from said cache compiled code associated with a previously compiled method having a lower priority indicative annotation than a presently compiled method* (e.g., col.1: 11 – col.2: 6; col.4: 9: 35).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Cierniak's teaching into Holzle's teaching. One would have been motivated to do so to as set forth above.

**Claim 24:**

Cierniak discloses *the method of claim 20, wherein: compiled byte-code stored in said cache is accessed via a cache map, said cache map being updated in response to a change in cache utilization* (e.g., col.3: 2-31; col.6: 31-58).

**Claim 25:**

Holzle discloses *the method of claim 18, further comprising: compiling non-annotated byte-code within said application if said non- annotated byte-code utilizes VM resources beyond a threshold level* (e.g., col.7: 23 – col.8: 39; col.11: 26 – col.12: 12).

**Claim 26:**

Holzle discloses *the method of claim 25, wherein: said compiled non-annotated byte-code is assigned a priority level in accordance with said utilized VM resources* (e.g., col.4: 4 – col.5: 30; col.10: 4-44).

**Claim 27:**

Holzle discloses *the method of claim 26, wherein: said priority level of said annotated byte-code is further adapted in accordance with said utilized VM resources* (e.g., col.6 21 – col.7: 21; col.12: 14-61).

**Claim 28:**

Holzle discloses *the method of claim 20, further comprising: said compiled annotated byte-code is assigned a priority level in accordance with said utilized VM resources* (e.g., col.4: 20 – col.5: 19; col.7: 12-67).

**Claim 29:**

Holzle discloses *the method of claim 28, wherein: said priority level of said annotated byte-code is further adapted in accordance with said utilized VM resources* (e.g., col.6: 21 – col.7: 21; col.10: 4-44).

**Claim 30:**

Holzle discloses *the method of claim 26, wherein said VM resources comprise at least one of an execution time parameter, an input/output utilization parameter and a processor utilization parameter* (e.g., col.4: 4 – col.5: 30; col.7: 23 – col.8: 39).

**Conclusion**

10. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone/fax numbers are (571) 272 8570 and (571) 273 8570, respectively. The examiner can normally be reached on every Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Thuy Dao/  
Examiner, Art Unit 2192

/Tuan Q. Dam/  
Supervisory Patent Examiner, Art Unit 2192